

and JP-A-1-138204, a combination of a dye having a rhodanine ring and a radical generator as described in JP-A-2-179643 and JP-A-2-244050, a combination of a titanocene and a 3-ketocoumarin dye as described in JP-A-63-221110, a combination of a titanocene, a xanthene dye and an addition-polymerizable ethylenically unsaturated compound having an amino group or a urethane group as described in JP-A-4-221958 and JP-A-4-219756, a combination of a titanocene and a specific merocyanine dye as described in JP-A-6-295061, or a combination of a titanocene and a dye having a benzopyran ring as described in JP-A-8-334897 are illustrated.

In recent years, with the development of a laser having a wavelength of from 400 to 410 nm (a violet laser) a photo-initiator system having high sensitivity to a wavelength of 450 nm or less sensitive to such a laser has been developed. Such a photo-initiator system can also be used in the present invention.

For example, a combination of a cationic dye and a borate as described in JP-A-11-84647, a combination of a merocyanine dye and a titanocene as described in JP-A-2000-147763 and a combination of a carbazole dye and a titanocene as described in Japanese Patent Application No. 11-221480 are illustrated.

In the present invention, the system comprising a titanocene compound is particularly preferred, since it is excellent in sensitivity.

Various kinds of titanocene compounds can be used and, for example, they are appropriately selected from those described in JP-A-59-152396 and JP-A-61-151197. Specific examples thereof include dicyclopentadienyl-Ti-dichloride, dicyclopentadienyl-Ti-bisphenyl, dicyclopentadienyl-Ti-bis-2,3,4,5,6-pentafluorophen-1-yl, dicyclopentadienyl-Ti-bis-2,3,5,6-tetrafluorophen-1-yl, dicyclopentadienyl-Ti-bis-2,4,6-trifluorophen-1-yl, dicyclopentadienyl-Ti-bis-2,6-difluorophen-1-yl, dicyclopentadienyl-Ti-bis-2,4-difluorophen-1-yl, dimethylcyclopentadienyl-Ti-bis-2,3,4,5,6-pentafluorophen-1-yl, dimethylcyclopentadienyl-Ti-bis-2,6-difluorophen-1-yl and dicyclopentadienyl-Ti-bis-2,6-difluoro-3-(pir-1-yl)-phen-1-yl.

It is known that a photo-initiating function is more improved by adding a hydrogen-donating compound, for example, a thiol compound, e.g., 2-mercaptobenzothiazole, 2-mercaptobenzimidazole or 2-mercaptobenzoxazole, or an amine compound, e.g., N-phenylglycine or an N,N-dialkylamino aromatic alkyl ester to the photo-initiators described above, if desired.

The amount of photo-initiator (system) used is from 0.05 to 100 parts by weight, preferably from 0.1 to 70

parts by weight, and more preferably from 0.2 to 50 parts by weight, per 100 parts by weight of the ethylenically unsaturated compound.

The polymer binder for use in the photosensitive layer of the photosensitive lithographic printing plate according to the present invention not only acts as a film-forming agent of the photosensitive layer but also must be soluble in an alkali developing solution. Thus, an organic polymer soluble or swellable in an aqueous alkali solution is ordinarily employed as the polymer binder.

Examples of such an organic polymer include an addition polymer having a carboxylic acid group in the side chain, for example, polymers described in JP-A-59-44615, JP-B-54-34327, JP-B-58-12577, JP-B-54-25957, JP-A-54-92723, JP-A-59-53836 and JP-A-59-71048, that is, a methacrylic acid copolymer, an acrylic acid copolymer, an itaconic acid copolymer, a crotonic acid copolymer, a maleic acid copolymer and a partially esterified maleic acid copolymer.

An acid cellulose derivative having a carboxylic acid group in the side chain is also used. Further, a polymer obtained by adding a cyclic acid anhydride to an addition polymer having a hydroxy group is useful. Of these polymers, a copolymer of benzyl (meth)acrylate, (meth)acrylic acid and if desired, other addition-